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PATENT, TRADEMARK, COPYRIGHT AND RELATED INTELLECTUAL PROPERTY LAW

July 26, 2004

Mail Stop Certificate of Corrections Branch
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Certificate
JUL 3 0 2004
of Correction

Re: U.S. Patent No.: 6,749,768 B2
Issued: June 15, 2004
Inventor: Masami Endo et al.
Our Docket: 34094

Sir:

A Certificate of Correction under 35 U.S.C. 254 is hereby requested to correct Patent Office printing errors in the above-identified patent. Enclosed herewith is a proposed Certificate of Correction (Form No. PTO-1050) for consideration along with appropriate documentation supporting the request for correction.

It is requested that the Certificate of Correction be completed and mailed at an early date to the undersigned attorney of record. The proposed corrections are obvious ones and do not in any way change the sense of the application.

We understand that a check is not required since the errors were on the part of the Patent and Trademark Office in printing the patent.

Very truly yours,

Jeffrey J. Sopko, Reg. No. 27676

JJS:vln
Enclosures

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to: Mail Stop Certificate of Corrections Branch, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on the date indicated below.

Jeffrey J. Sopko
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July 26, 2004

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PTO/SB/44 (07-03)
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
(Also Form PTO-1050)

UNITED STATES PATENT AND TRADEMARK OFFICE
CERTIFICATE OF CORRECTION

PATENT NO.	:	6,749,768 B2
DATED	:	June 15, 2004
INVENTOR(S)	:	Masami Endo et al.

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

Column 17, line 60, please delete “GIlz” and insert therefor –GHz–.

Column 21, line 51, please delete “Th” and insert therefor –To–.

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PATENT NO. 6,749,768 B2

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sample No. 2 where no substitution with Sr is performed, and shows an excellent value of 3.5 or higher. In Fig. 40, μ″ shows substantially the same tendency as μ′, and the samples No. 30 to No. 32 where $BaCO_3$ is substituted with $SrCO_3$ by 20% to 35% show particularly high μ″. From the above results, it was made clear that there existed an optimal amount of Sr for substitution in order to obtain high μ′ and μ″.

Toroidal cores created by using the milled powder of the samples No. 28 and No. 29 that were calcined at 1300°C and the samples No. 30 to No. 34 that were calcined at 1250°C were inserted to the coaxial tube sample holder, and the complex permeability (μ′, μ″) in the high frequency range (50 MHz to 1.8 GHz) was measured by using an impedance analyzer (manufactured by Hewlett-Packard Ltd.). Fig. 18 shows the results together with the measurement result of the sample No. 2. In Fig. 18, μ′ of the toroidal cores by the samples No. 30 to No. 32 exceeds that of the sample No. 2 containing no $SrCO_3$, and the flat portions of μ′ extend to a higher frequency range than that of the sample No. 2. Therefore, it was found out that the material having a high permeability and excellent high frequency characteristic could be obtained by substituting $BaCO_3$ with $SrCO_3$ by 20% to 35%. The flat portions of μ′ regarding the samples No. 28, No. 29, No. 33 and No. 34 also extend to the higher frequency range, implying that they can be used in the higher frequency range.

In Fig. 18, the peak value of μ″ for the sample No. 2 containing no $SrCO_3$ was obtained at the frequency of about 1.5 GHz. On the other hand, the peak value of μ″ for the sample No. 28 (8% substitution) where a portion of $BaCO_3$ was substituted with $SrCO_3$ is obtained at the frequency of about 5.5 GHz, and it is understood that the peak value of μ″ shifted to the higher frequency side. Similarly, μ″ of the samples No. 29 to No. 34 were measured, and the peak value of μ″ was obtained at the frequency of: 4.0 GHz with regard to the sample No. 29 (16% substitution); 2.6 GHz with regard to the sample No. 30 (20% substitution); 2.0 GHz with regard to the sample No. 31 (25% substitution); 2.8 GHz with regard to the sample No. 32 (35% substitution); 3.8 GHz with regard to the sample No. 33 (50% substitution); and 4.0 GHz with regard to the sample No. 34 (75% substitution). Specifically the peak value of μ″ for the samples No. 28 to No. 34 where a portion of $BaCO_3$ was substituted with $SrCO_3$ is obtained at the frequency of about 2.0 GHz or higher, and the peak value of μ″ shifted to the

the magnetic ferrite material was maintained even when the sintering aids A to C, that is, Bi_2O_3 based glass was added.

Next, when the sample No. 40 and the sample No. 57 are compared, μ' of the sample No. 40 is 2.25, and μ' of the sample No. 57 is 3.12. Here, the sintering aid A is added to the sample No. 40 by 7.0 wt%, and the sintering aid A and CuO are added to the sample No. 57 by 3.0 wt% respectively, that is, 6.0 wt% in total. The sample No. 57 having the total amount of additive of 6.0 wt% shows higher μ' than μ' of the sample No. 40 having the total amount of additive of 7.0 wt%. Therefore, it was found out that a smaller added amount could increase μ' when the sintering aid A and CuO were added in combination. The same thing as the sample No. 39 and the sample No. 57 applies to the samples No. 44 and No. 60, and the samples No. 47 and No. 63.

The following tendency has been shown with regard to the imaginary part μ'' (hereinafter, referred to as μ'' as appropriate) of complex permeability. Specifically, the permeability μ'' of the samples No. 57 to No. 65 to which the sintering aids A to C and CuO were added in combination improved in comparison with the cases where only the sintering aids A to C were added (the samples No. 38 to No. 40, and No. 42 to No. 47).

From the above results, it was found out that the permeability μ' and μ'' improved when Bi_2O_3 based glass and CuO were added in combination in comparison with the case where only Bi_2O_3 based glass was added. To obtain good permeability μ' and μ'', it is desirable that Bi_2O_3 based glass and CuO are added by 1 wt% to 20 wt% in total, more desirably about 3 wt% to 15 wt%.

(Example 9)

Cores of a toroidal shape were created by using the milled powder of the samples No. 57 to No. 59 (the sintering aid A+CuO), the samples No. 60 to No. 62 (the sintering aid B+CuO) and the samples No. 63 to No. 65 (the sintering aid C+CuO) in the same step as Example 8. The peak value of the mean grain size distribution of each sample is 1.0 μm and the specific surface area is 9 m^2/g. The permeability of the obtained cores was measured in the same manner as Example 8. Note that the measurement was performed for the frequency range up to 10 GHz in Example 9. Fig. 21 to Fig. 23 show the results together with the measurement result of the sample No. 56 (Bi_2O_3 and CuO were added by 5 wt% respectively). Fig. 21